Abstract of the Disclosure

A packet-based, hierarchical communication system, arranged in a spanning tree configuration, is described in which wired and wireless communication networks exhibiting substantially different characteristics are employed in an overall scheme to link portable or mobile computing devices. The network accommodates real time voice transmission both through dedicated, scheduled bandwidth and through a packet-based routing within the confines and constraints of a data network. Conversion and call processing circuitry is also disclosed which enables access devices and personal computers to adapt voice information between analog voice stream and digital voice packet formats as proves necessary. Routing pathways include wireless spanning tree networks, wide area networks, telephone switching networks, internet, etc., in a manner virtually transparent to the user. A voice session and associate call setup simulates that of conventional telephone switching network, providing well-understood functionality common to any mobile, remote or stationary terminal, phone, computer, etc.